

# **Ryan Chouest daily data transmission and report**

***Period covered: 1000 hrs 07/06/2010-1000 hrs 07/07/2010***

***171.161 – Cumulative nautical miles covered***

## **Vessel science party:**

Xiubin Qi ([Xiubin.Qi@csiro.au](mailto:Xiubin.Qi@csiro.au))

Stephane Armand ([Stephane.Armand@csiro.au](mailto:Stephane.Armand@csiro.au))

Andy Revill ([Andy.Revill@csiro.au](mailto:Andy.Revill@csiro.au))

Charlotte Stalvies ([Charlotte.Stalvies@csiro.au](mailto:Charlotte.Stalvies@csiro.au))

Tosin Majekodunmi ([Tosin.Majekodunmi@bp.com](mailto:Tosin.Majekodunmi@bp.com))

Curtis Walker ([cwalker@entrix.com](mailto:cwalker@entrix.com))

Michael Griffin ([Griffinmi09@students.ecu.edu](mailto:Griffinmi09@students.ecu.edu))

## **Contact details:**

+ 1 337 761 9830 – Sat phone

+ 1 337-761-9830 – Broadband phone ship office 1

+ 1 337-761-9827 – Broadband phone ship office 2

+ 1 337-761-9826 - Broadband phone ship bridge

## **Objective:**

To investigate the occurrence and distribution of dissolved hydrocarbon concentrations in the loop current area.

## **Cruise notes:**

The shallow water pump and sensors were cleaned at 1110 hrs. The vertical cast was retrieved from the water at 1104 hrs, subsequently dropped to pump samples at 1122 and 1554 hrs (27°08.877'N, 085° 25.064'W and 27°08.799'N, 085°59.819'W) *Ryan Chouest* Ship mate; Brain Corley gave crew members a "Man overboard" briefing and acknowledgement at 1230hrs. CSIRO crew discovered, at 1530 hrs, that the pump had been off for a certain period and had it switched on. Shortly after, at 1540 hrs, the vertical cast pump was purged and later lowered into the gulf. As of 0800 hrs on 07/07, the *Ryan Chouest* was 33 miles from the MC 252 site.

## **Science results and preliminary interpretation:**

### Fluorometry results

Fluorometry results from the Chelsea, Trios, and Contros sensors, all show very low Poly aromatic hydrocarbon levels. These results indicate that inferred hydrocarbon concentrations over the track covered (Figures 2-4) are low.

From 2323hrs (CDT) 07/05/2010 till 1749hrs 07/06/2010, three vertical casts have been conducted in the loop current area at the following locations along our planned route, (N 27 08.872, W 084 33.440; N 27 08.877, W 085 25.064 and N 27 08.799, W 085 59.819).

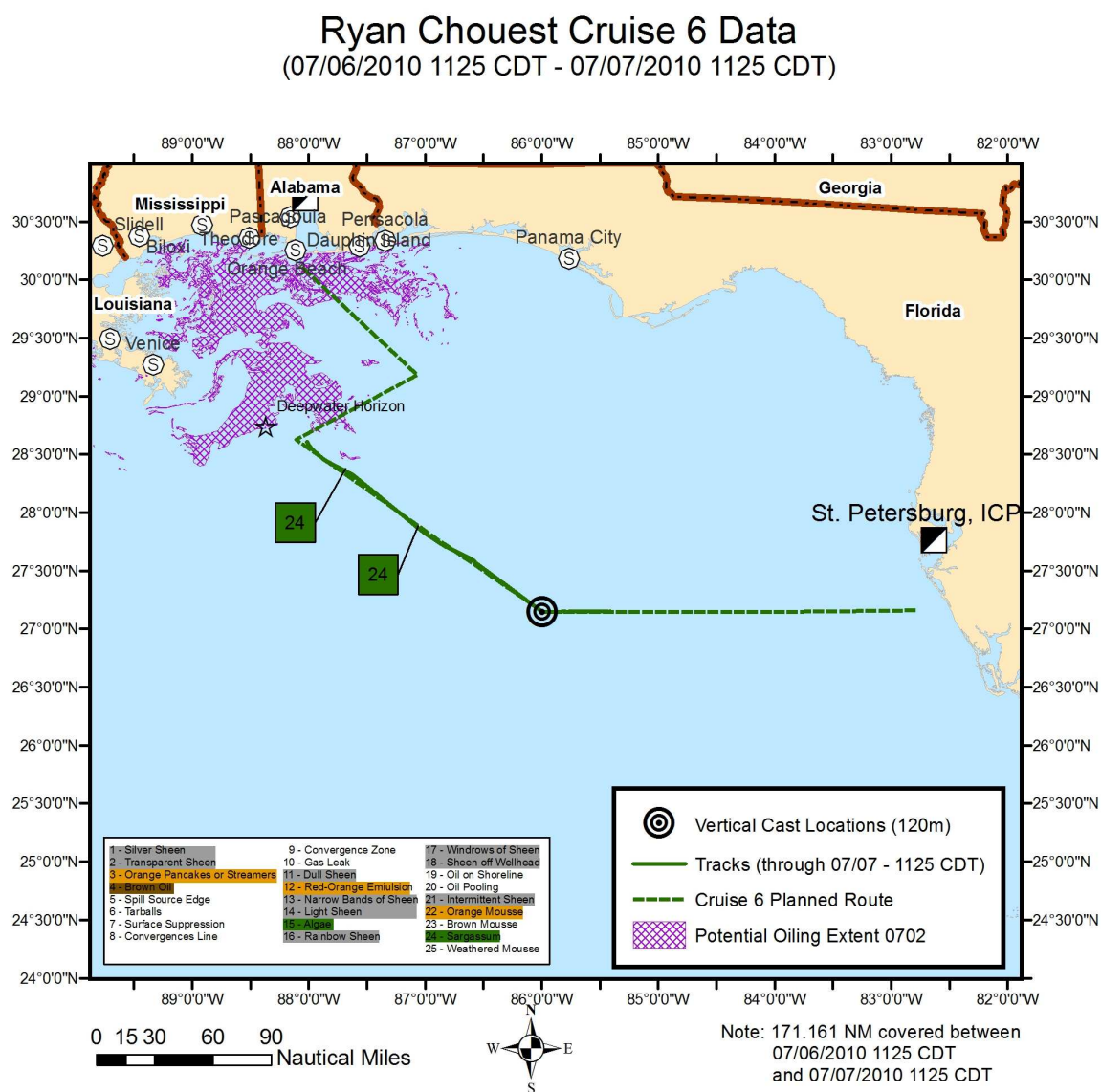
The vertical cast pump was lowered to the depth of 120m directly from the surface, sensor readings were taken at 20 meter intervals (120m, 100m, 80m, 60m, 40m, 20m, surface 3m) as the pump was brought up to the surface and stayed for 10min at each sampling depth. Water samples were taken from the tank outlet for further GCMS analysis to obtain more quantitative information on hydrocarbon concentrations.

Figure 5A to Figure 5C show the calibrated sensor responses during the vertical casts conducted at three different locations. The results indicate that all sensor readings along the water column show close to baseline PAH (poly aromatic hydrocarbon) concentration levels.

The GCMS analysis is still ongoing and the result will be presented in the cruise summary.

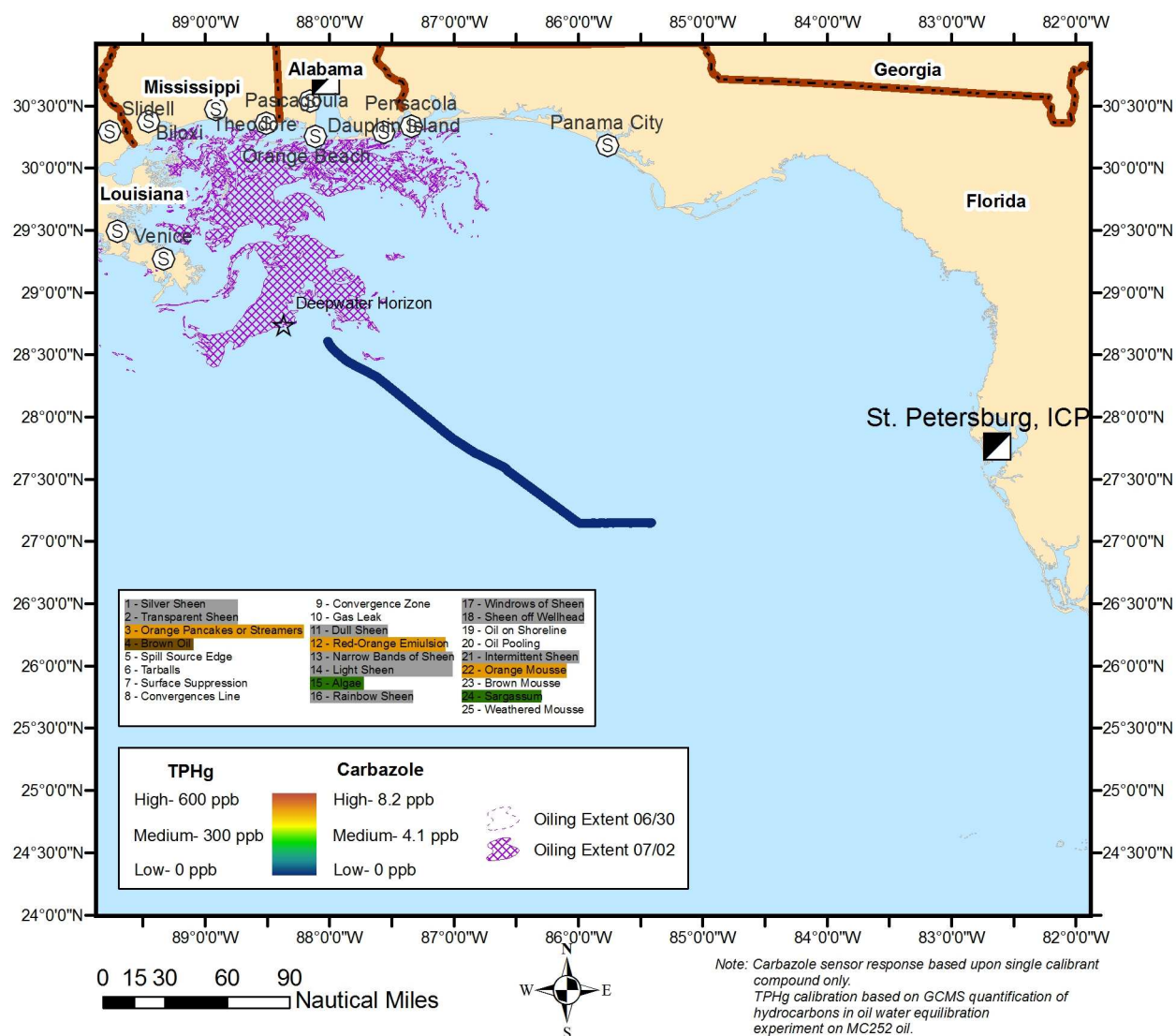
### Surface Observations

Clear waters throughout distance covered. No significant observation.



**Figure 1.** Planned course plotted for Cruise 6. Purple shaded area represents outline extent of the slick from 07/02 ERMA composite.

# Ryan Chouest Cruise 6 Data Chelsea- Fluorometer (07/06/2010 1125 CDT - 07/07/2010 1125 CDT)

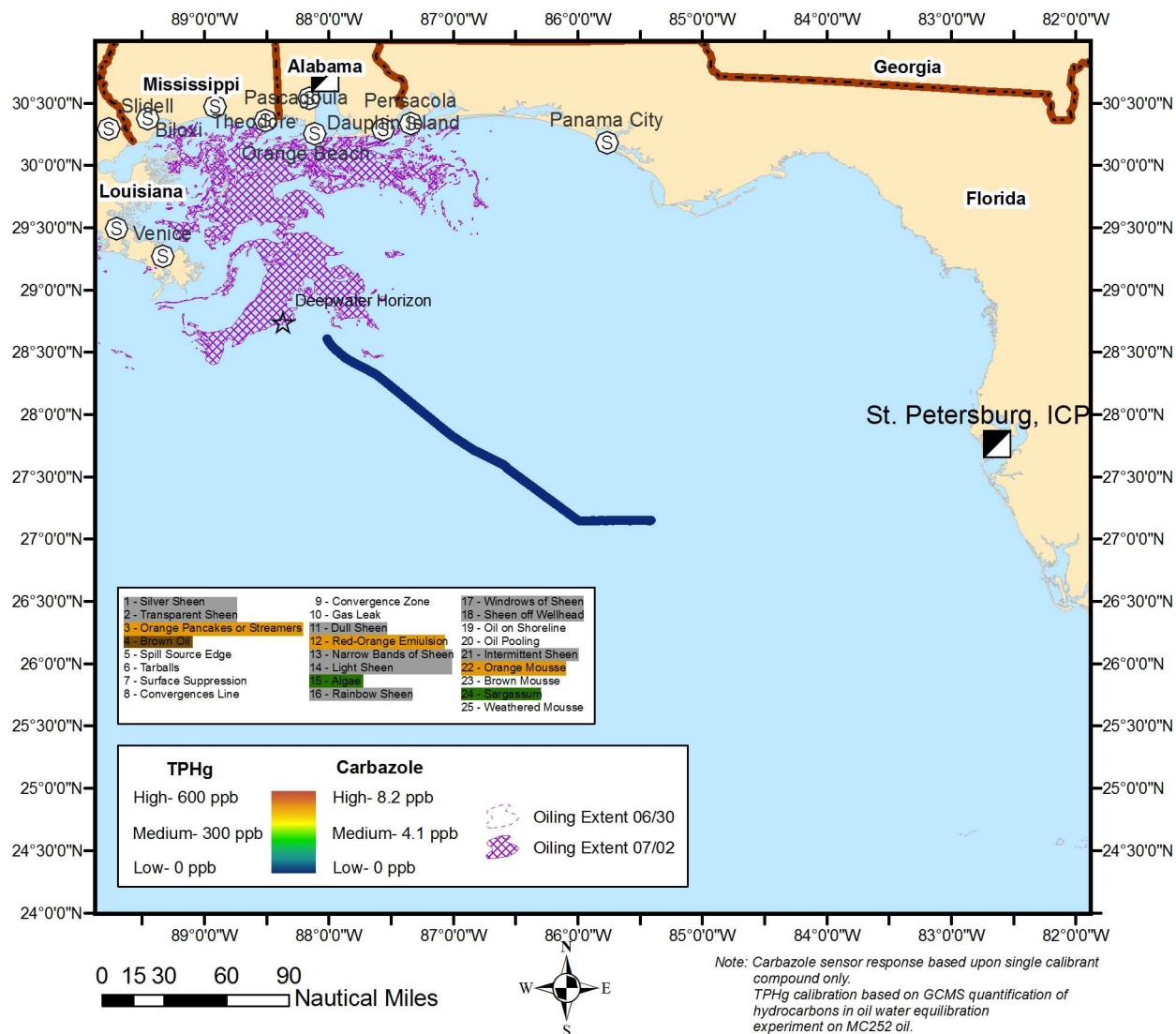


**Figure 2.** Chelsea fluorometer results plotted with location on cruise 6 track.

# Ryan Chouest Cruise 6 Data

## Trios - Fluorometer

(07/06/2010 1125 CDT - 07/07/2010 1125 CDT)

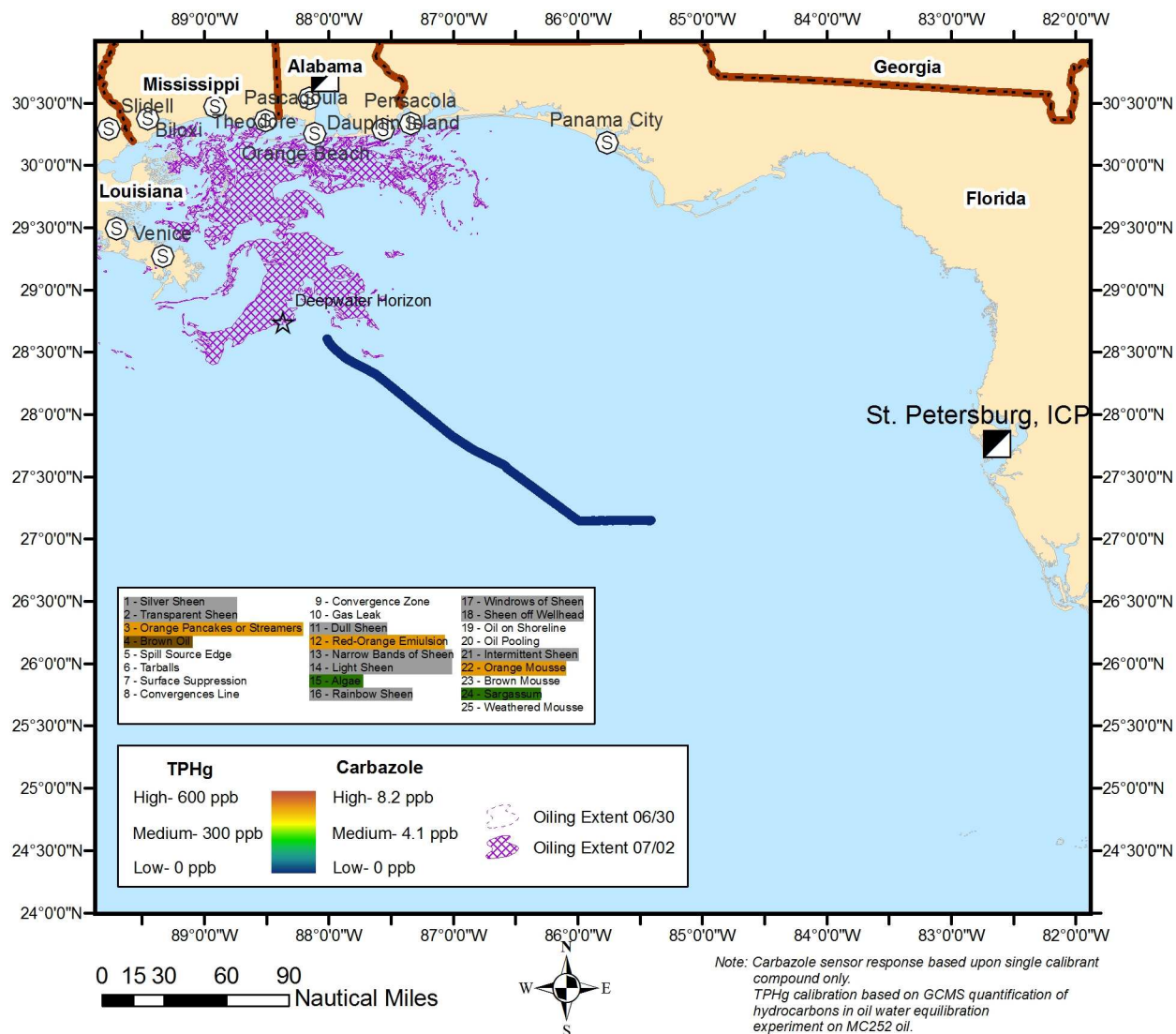


**Figure 3.** Trios fluorometer results plotted with location on cruise 6 track.

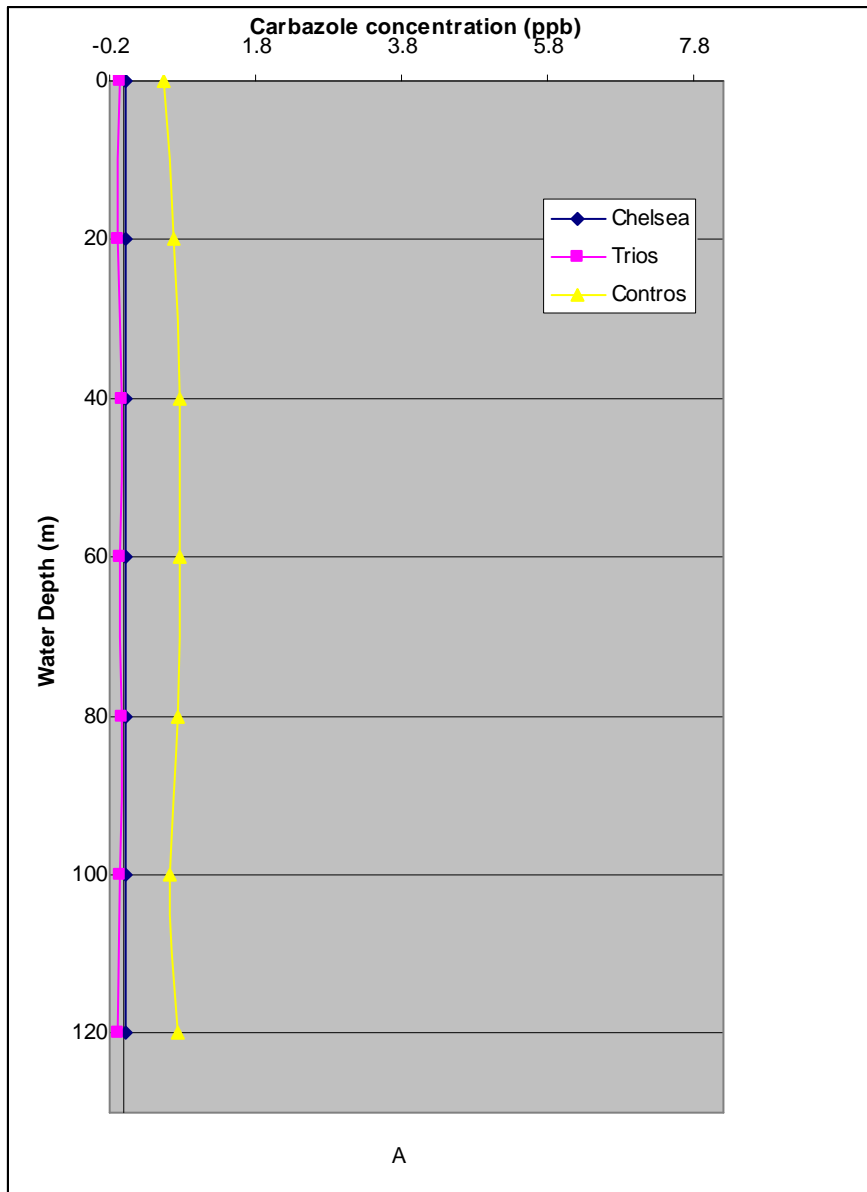
# Ryan Chouest Cruise 6 Data

## Contros - Fluorometer

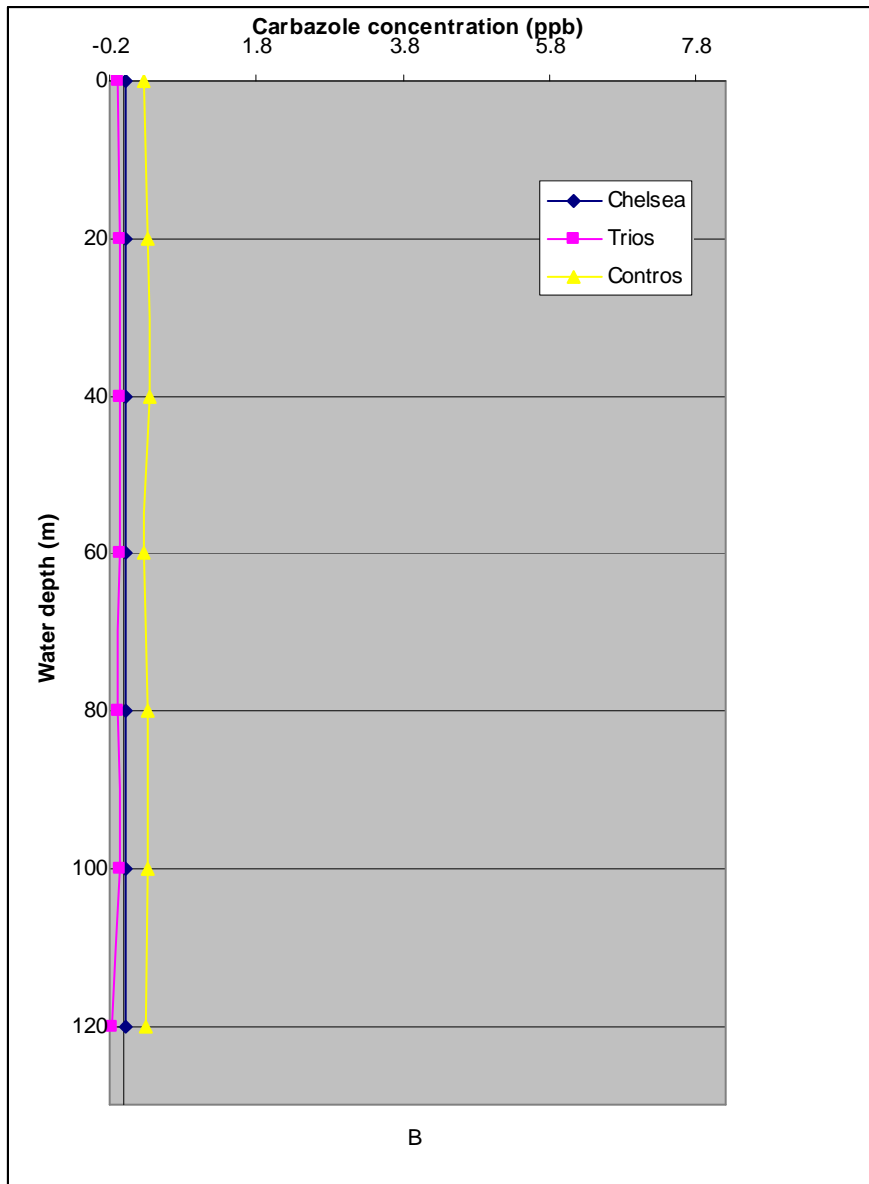
(07/06/2010 1125 CDT - 07/07/2010 1125 CDT)



**Figure 4.** Contros fluorometer results plotted with location on cruise 6 track.

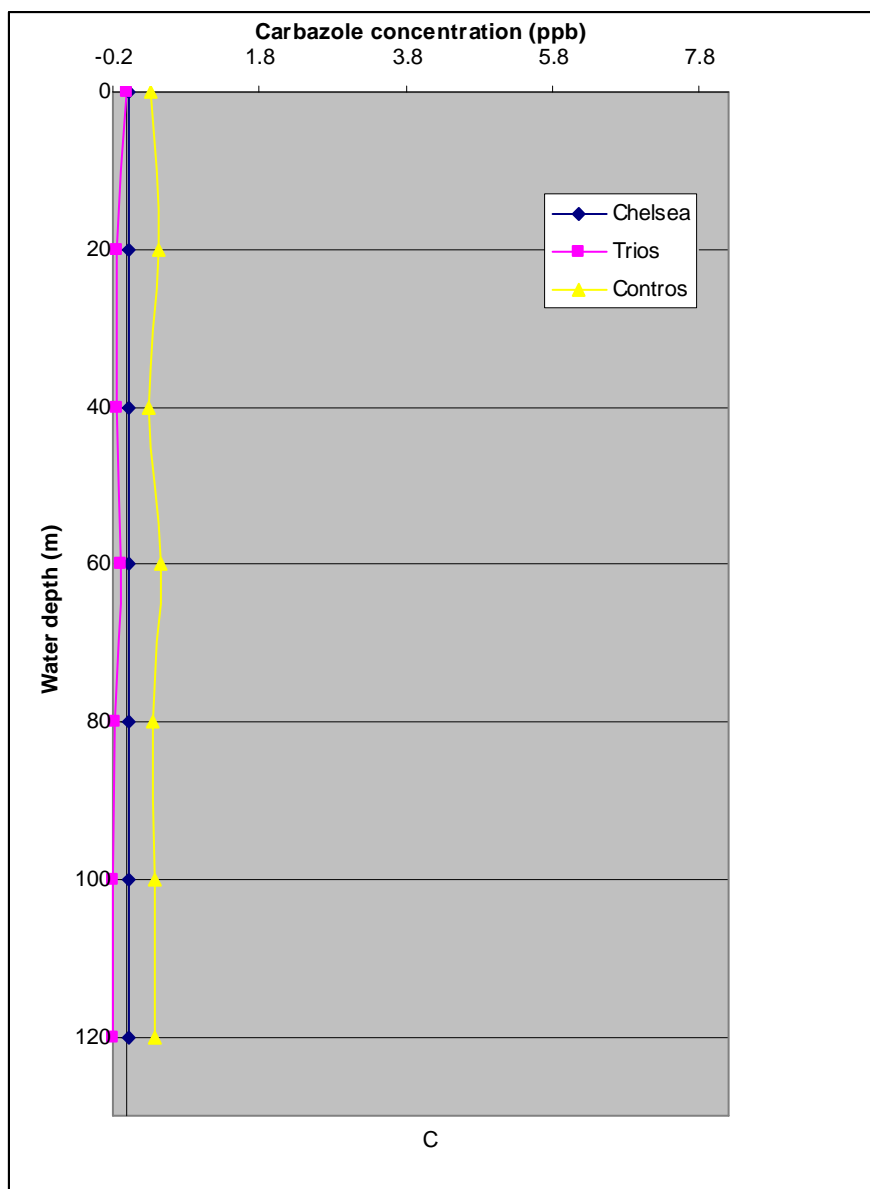


**Figure 5A.** Fluorometer response vs. Water depth, vertical cast 1 (N 27 08.872, W 084 33.440)



**Figure 5B.** Fluorometer response vs. Water depth, vertical cast 2 (N 27 08.877, W 085 25.064)





**Figure 5C.** Fluorometer response vs. Water depth, vertical cast 3 (N 27 08.799, W 085 59.819)

### **Problems/operational issues:**

At 1800, the shallow pump was temporarily not pumping water. The issue was tested and resolved by switching the cord connected the control box which might have been the primary cause. One of the CSIRO crew members suffered a minor finger injury while using the doors during while the swells rocked the Ryan Chouest.

### **Planned activities for next 24 hours:**

Stay on course with the revised Cruise 6 route. Anticipate arrival at the next set of designated locations where the vertical cast system will be deployed.